What is claimed is:

1. A transcoder for resizing video data and outputting the resized video data to a reproduction apparatus, the reproduction apparatus reproducing the resized video data by repeating a display period and a non-display period alternately, the transcoder comprising:

a resizing unit operable to resize the video data; and

a control unit operable to cause the resizing unit to resize the video data to first video data having a first resolution so that the reproduction apparatus displays one image during each display period, and

cause the resizing unit to resize, during each period between the resizing of the video data to the first video data, the video data to second video data having a second resolution that is lower than the first resolution.

2. The transcoder of Claim 1 further comprising:

a receiving unit operable to receive encoded video data from outside the transcoder;

a decoding unit operable to decode the received encoded video data to obtain the video data to be resized by the resizing unit to the first video data; and

an encoding unit operable to encode video data, wherein

the control unit causes the encoding unit to encode the second video data.

3. The transcoder of Claim 2, wherein

the encoding unit causes the decoding unit to perform, during each period between the decoding by the decoding unit for the video data to be resized to the first video data, a local decoding on second encoded video data that is obtained by encoding the video data obtained by the decoding unit, and

the encoding unit performs a predetermined calculation using a result of the local decoding to obtain a prediction error, during each period between the resizing of the video data to the first video data, and encodes video data based on the calculated prediction error.

4. The transcoder of Claim 3, wherein

the encoded video data received by the receiving unit has been subject to a DCT process and a quantization process, and

the decoding unit includes:

an inverse quantization sub-unit operable to perform an inverse quantization process corresponding to the quantization process, on the received video data; and

an inverse DCT sub-unit operable to perform an inverse DCT process corresponding to the DCT process, on the received video data, wherein

the decoding performed by the decoding unit caused either by the control unit or the encoding unit includes the inverse quantization process and the inverse DCT process.

5. The transcoder of Claim 3 further comprising

a shared circuit having a selector, an adder-subtracter, a multiplier, and a cumulative adder which are connected to each other so that the multiplier multiplies values output from the selector and the adder-subtracter, and either a value output from the multiplier or a value output from the adder-subtracter is input into the cumulative adder, wherein

the resizing unit and the encoding unit share the shared circuit,

the resizing unit performs resizing by causing the selector to select a filter coefficient, causing the adder-subtracter to add up values of adjacent pixels, causing the multiplier to multiply the selected filter coefficient by an addition-result value output from the adder-subtracter, and causing the cumulative adder to cumulatively add a multiplication result output from the multiplier, and

the encoding unit performs the predetermined calculation by causing the selector to select two pixels for comparison respectively from two sets of pixels respectively constituting consecutive two images, causing the adder-subtracter to perform a subtraction between the selected two pixels, and causing the cumulative adder to cumulatively add a difference value that is a result of the subtraction.

6. The transcoder of Claim 1, wherein

in each display period, one field of images is displayed.

7. The transcoder of Claim 1, wherein

the first resolution corresponds to either a size for HDTV or a size for SDTV, and

the second resolution corresponds to a size for CIF, a size for QVGA, and a size for QCIF.

8. The transcoder of Claim 1, wherein

the resizing unit resizes the video data to the second video data after thinning out images constituting the video data.

9. The transcoder of Claim 1, wherein

the video data to be resized conforms to MPEG2 standard.